



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/174,957	12/28/1993	SHIRO KAMIYAMA	024703006	9165
21839	7590	04/22/2004	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			LEADER, WILLIAM T	
POST OFFICE BOX 1404			ART UNIT	
ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

1742

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 08/174,957	Applicant(s) KAMIYAMA ET AL.	
	Examiner William T. Leader	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 31 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4, 6 and 16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 7-15 is/are allowed.
- 6) ☒ Claim(s) 2, 5, 17 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040105</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt of the papers filed on January 5, 2004, is acknowledged. Claims 1 and 7-15 were previously allowed. Claims 3, 4, 6 and 16 are directed to nonelected species and remain withdrawn from consideration. Claims 29 and 30 have been canceled. New claim 31 has been presented. Claims 2, 5 17 and 31 are under consideration
2. Applicant's amendment of the claims is deemed to have overcome the rejection under 35 U.S.C. 112, first paragraph. This rejection is withdrawn.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

4. Claims 2, 5, 17 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sopp, Jr. (3,655,467) combined with McAuliffe et al (5,104,465) and in view of the Lowenheim text *Electroplating* and *Hackh's Chemical Dictionary*.
5. As set forth in the office action of December 17, 2002, the Sopp, Jr. patent is directed to a process for etching an aluminum base. Representative aluminum base alloys are aluminum-magnesium alloys, especially those of the 5000 series. Other alloys are heat-treatable aluminum-magnesium-silicon alloys such as 6061 (column 2, lines 29-41). The aluminum workpiece is etched in a single step in an alkaline

solution which contains a soluble pyro- or polyphosphate (column 1, lines 45-49). Thus, the solution would have a greater than 7. The solution may contain one or more chelating agents (column 2, lines 20-21). Use of the etching solution promotes adhesion of subsequently applied chromate films (column 1, lines 61-65). This chromate film corresponds to the coating type chromating recited in instant claims 2 and 17. Sopp, Jr. teaches that aluminum alloys which have been treated with a chromate conversion coating and painted are useful in making beverage cans (column 1, lines 12-22. The painting step following the step of applying a chromate conversion coating corresponds to the step of post-treating by coating recited in instant claim 5 and newly presented claim 31.

6. Instant claims 2, 5, 17 and 31 differ from the process of Sopp, Jr. by reciting a step of heating the aluminum-magnesium alloy at a temperature of 200 ° or above. As noted above, Sopp, Jr. does teach that the etching process can be used on heat-treatable alloys but does not specify the temperature to which the alloy has been heated. The McAuliffe et al patent is directed to aluminum alloy sheet stock which can be used for making cans. At column 3, lines 21-43, McAuliffe et al describes a prior art process in which a melt of 3004 alloy, or an alloy in which the combined concentration of manganese and magnesium is between 2 and 3.3 weight percent, is cast and then held for 2 to 15 minutes between 400 °C and the alloy's liquidus temperature, hot rolled at a temperature between 300°C and the non-equilibrium

solidus temperature, coiled and cooled to room temperature. Thus, McAuliffe et al teach that heat treatment of a heat-treatable aluminum-magnesium alloy is performed at a temperature of 200 °C or above as recited in claims 2 and 17.

7. Claims 2 and 17 have been amended to include the limitations of previously presented claims 29 and 30. As indicated in the office action of June 3, 2003, the limitations of these claims recite that an oxide layer is formed on the surface of the article during the step of processing and that the oxide layer is decreased or removed by the step of etching. The Lowenheim text states that aluminum alloys form a natural, impervious oxide film. Hackh's Chemical Dictionary discloses that aluminum is readily oxidized. This film forms very rapidly. In view of these teachings, the aluminum articles of Sopp, Jr. and McAuliffe et al would have had an oxide film. In particular, McAuliffe et al disclose treatment of an Al-Mg alloy at high temperature, but do not suggest performing the operations in an oxygen-free atmosphere. Thus, oxygen in the atmosphere would have reacted with the aluminum to form an oxide film. In table I, Sopp, Jr. discloses the weight loss due to etching. Since the etchant contacts the surface of the aluminum alloy, and the surface has an oxide film, at least part of the oxide would have been removed.

8. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized the etching and coating method of Sopp, Jr. to have processed a heat-

treatable aluminum-magnesium alloy which has been heat treated at a temperature of 200°C or above because McAuliffe et al teach that temperatures within this range are effective for treating heat-treatable alloys and improved adhesion of a chromate coating and paint have been achieved as taught by Sopp, Jr. In view of the teaching of the Lowenheim text and Hackh's dictionary, the workpiece would have had an oxide coating which would have been reduced by the etching process of Sopp, Jr.

9. Claims 2, 5, 17 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sopp, Jr. (3,655,467) combined with Chakrabarti et al (5,055,257), newly cited, and in view of the Lowenheim text *Electroplating* and *Hackh's Chemical Dictionary*.

10. The Sopp, Jr. patent, the Lowenheim text and Hackh's dictionary are taken as above. The Chakrabarti et al patent is directed to superplastic aluminum articles. As shown by tables VIII, IX and X, the aluminum alloys contain magnesium. The alloy is readily castable into an ingot (column 4, lines 24-26). In producing superplastic sheet, it is desirable to impart work into the metal to break up the cast structure and alter the grain texture (column 4, lines 48-50). The working can be relatively hot (550 to 750°F; 288 to 399°C) or cold or both (column 4, lines 58-59). Thus, Chakrabarti et al discloses an improved superplastic, high temperature-processed article which has been treated at a temperature of 200°C or

above. It would have been obvious at the time the invention was made to have utilized the etching and coating method of Sopp, Jr. to have processed a heat-treatable aluminum-magnesium alloy treated at a temperature of greater than 200°C as taught by Chakrabarti et al because improved adhesion of a chromate coating and paint would have been achieved as taught by Sopp, Jr. In view of the teaching of the Lowenheim text and Hackh's dictionary, the workpiece would have had an oxide coating which would have been reduced by the etching process of Sopp, Jr.

Response to Amendment

11. Applicant's arguments with respect to the office action of June 3, 2003, have been carefully considered but are not deemed to be persuasive. Applicant has amended independent claims 2 and 17 to utilize the transition phrase "consisting essentially of" rather than "comprising". The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original). See MPEP 2111.03. This use of the new transitional language is not seen as distinguishing applicant's claimed invention from the process suggested by the references. Sopp, Jr. discloses the steps of etching a heat-

treatable aluminum alloy and then applying a chromate film. McAuliffe et al shows that the heat treatment of aluminum-magnesium heat-treatable alloys is known to be performed at temperatures above 200°C as recited by applicant. The process suggested by the references is not seen as requiring steps that materially affect the basic and novel characteristics of the claims invention.

At page 10 of the Remarks, applicant states that neither Sopp, Jr. nor McAuliffe et al discloses that an oxide layer is formed on the surface of the article let alone that such oxide layer is decreased or removed by the step of etching. Applicant argues that inherency of the claimed features in question has not been established. Despite applicant's arguments, Lowenheim and Hackh's dictionary are considered to show that an oxide layer forms naturally on aluminum. Applicant points to Japanese patent document 58-187258 as supporting the contention that an oxide layer need not be present. In the process of the Japanese document, a brazing material is applied to an aluminum material. The brazing material is processed in such a manner that its surface is oxide free. This process differs from that suggested by the references in that it is a brazing material on the surface of the aluminum, not the aluminum itself, that is processed to be oxide free. Additionally, the process is executed so that working and assembly are performed in a state that oil remains adhering to the surface and the workpiece is heated after evaporating

the oil in a vacuum chamber. This is a different process than that suggested by the applied references.

12. With respect to removal of oxide by etching, the etching step of Sopp, Jr. is the same as that disclosed by applicant. Applicant has offered no cogent explanation as to why applicant's etching step would remove oxide but that of Sopp, Jr. would not.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WY

William Leader
April 16, 2004

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700